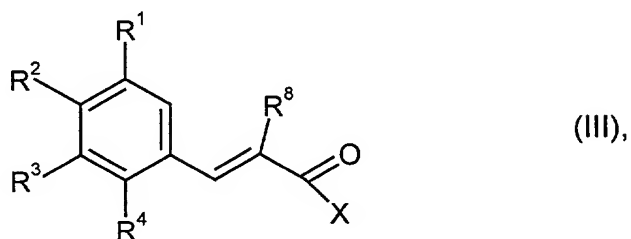


WHAT IS CLAIMED IS:

1. A process for preparing a polyhalogenated cinnamic acid or a cinnamic acid derivative having the formula (III)



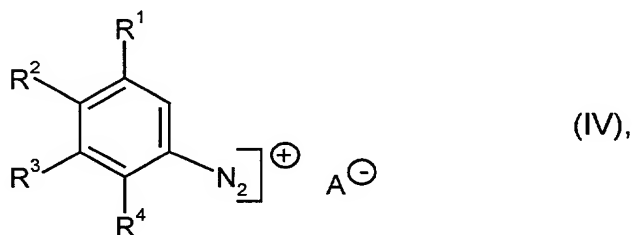
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wherein  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  are identical or different and in each case represent hydrogen, fluorine, chlorine or bromine, at least two of these radicals being other than hydrogen and

- 10  $X$  represents  $OR^5$  or  $N(R^6)(R^7)$ , where  $R^5$  represents hydrogen or optionally substituted  $C_1$ - $C_{10}$ -alkyl, optionally substituted phenyl or benzyl and  $R^6$  and  $R^7$  are identical or different and in each case represent optionally substituted  $C_1$ - $C_{10}$ -alkyl and

$R^8$  represents hydrogen, chlorine, bromine or optionally substituted  $C_1$ - $C_{10}$ -alkyl,

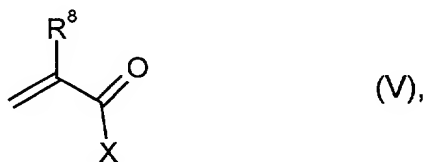
- 15 the process comprising: reacting (1) a diazonium salt of the formula (IV)



20

wherein

- $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  have the meaning indicated in formula (III) and  
 $A^\ominus$  represents an equivalent of halide, hydrogensulfate, nitrate,  
 5 acetate or tetrafluoroborate ions or  $\frac{1}{2}$  an equivalent of sulfate ions or  $\frac{1}{3}$  an  
 equivalent of phosphate ions,  
 with (2) an acrylic acid or an acrylic acid derivative of the formula  
 (V)



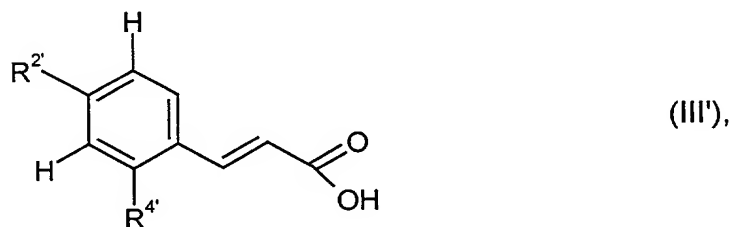
10

wherein

- X has the meaning indicated in formula (III) and  
 $R^8$  represents hydrogen, chlorine, bromine or optionally  
 substituted  $C_1$ - $C_{10}$ -alkyl,  
 15 in the presence of a homogeneous, palladium-containing catalyst at  
 a temperature ranging from about -5 to about +100°C.
2. The process according to Claim 1, wherein  
 $R^1$  represents hydrogen or chlorine,  
 $R^2$  represents hydrogen, fluorine, chlorine or bromine,  
 20  $R^3$  represents hydrogen or chlorine and  
 $R^4$  represents fluorine or chlorine, at least one of the radicals  $R^1$ ,  
 $R^2$  and  $R^3$  being other than hydrogen,  
 $R^5$  represents hydrogen, methyl, ethyl, isopropyl or benzyl,  
 $R^6$  and  $R^7$  represent methyl or ethyl,  
 $R^8$  represents hydrogen or methyl and  
 $A^\ominus$  represents an equivalent of chloride, hydrogensulfate or acetate  
 or  $\frac{1}{2}$  an equivalent of sulfate.
- 30 3. The process according to Claim 1, wherein, the palladium-  
 containing catalyst is selected from the group consisting of  $PdCl_2$ ,  $PdBr_2$ ,  
 $Pd(NO_3)_2$ ,  $H_2PdCl_4$ ,  $Pd(CH_3COO)_2$ ,  $Na_2PdCl_4$ ,  $K_2PdCl_4$ ,  $Pd(II)$  acetylac-

tonate, tetra-(trisphenylphosphine)Pd , tris-(dibenzylidene-acetone)Pd<sub>2</sub> and mixtures thereof and the palladium-containing catalyst is used in an amount ranging from about 0.001 to about 10 mol%, based on the diazonium salt of the formula (IV).

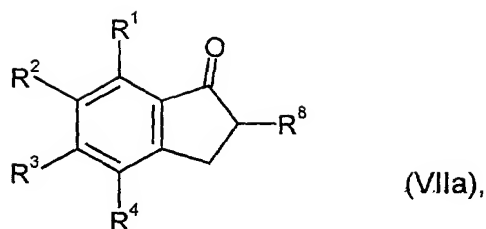
- 5 4. The process according to Claim 1, wherein the diazonium salt of the formula (IV) is prepared from a corresponding aniline by reaction with sodium nitrite in acidic, aqueous solution or by reaction with an alkyl nitrite in acidic methanol and the salt is employed in the form of a reaction mixture obtained during its preparation.
- 10 5. The process according to Claim 1, wherein from about 0.5 to about 2 moles of acrylic acid or acrylic acid derivatives of the formula (V) are employed, per mole of diazonium salt of the formula (IV).
6. The process according to Claim 1, wherein the process is carried out without a base.
- 15 7. A polyhalogenated cinnamic acid or a cinnamic acid derivative having the formula (III'):



wherein

- 20 R<sup>2'</sup> represents chlorine and R<sup>4'</sup> represents fluorine, or  
R<sup>2'</sup> represents fluorine and R<sup>4'</sup> represents chlorine.

8. A method for preparing an indanone derivative of the formula (VIIa):

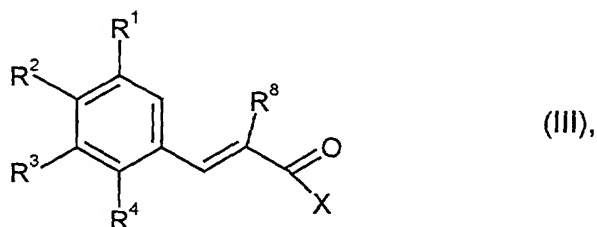


wherein

- $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  are identical or different and in each case represent hydrogen, fluorine, chlorine or bromine, at least two of these radicals being other than hydrogen and
- 5  $R^8$  represents hydrogen, chlorine, bromine or optionally substituted  $C_1$ - $C_{10}$ -alkyl,

the method comprising:

- (a) hydrogenating a polyhalogenated cinnamic acid or cinnamic
- 10 acid derivative having the formula (III)



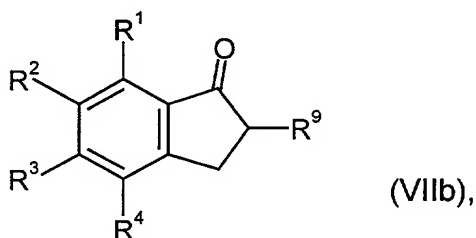
wherein  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$  and  $R^8$  have the indicated in formula (VIIa) above and

- 15 X represents  $OR^5$  or  $N(R^6)(R^7)$ , where  $R^5$  represents hydrogen or optionally substituted  $C_1$ - $C_{10}$ -alkyl, optionally substituted phenyl or benzyl and  $R^6$  and  $R^7$  are identical or different and in each case represent optionally substituted  $C_1$ - $C_{10}$ -alkyl and

- $R^8$  represents hydrogen, chlorine, bromine or optionally
- 20 substituted  $C_1$ - $C_{10}$ -alkyl,
- and

(b) cyclizing the hydrogenated cinnamic acid or cinnamic acid derivative formed in step (a), thereby forming the indanone derivative of the formula (VIIa).

- 5 9. A method for preparing an indanone derivative of the formula (VIIb)

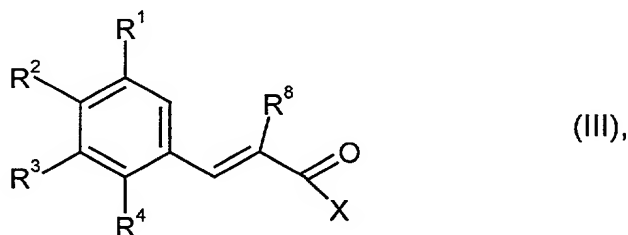


wherein  $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  are identical or different and in each case represent hydrogen, fluorine, chlorine or bromine, at least two of these radicals being other than hydrogen and

- 10  $R^9$  represents  $\text{COOH}$ ,  $\text{CONH}_2$  or  $\text{COOR}^{10}$ , wherein  $R^{10}$  denotes  $\text{C}_1$ - $\text{C}_4$ -alkyl,

the method comprising:

- 15 (a) hydrogenating a polyhalogenated cinnamic acid or cinnamic acid derivative having the formula (III)

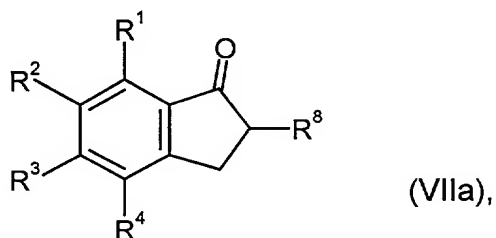


wherein  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$  are identical or different and in each case represent hydrogen, fluorine, chlorine or bromine, at least two of these radicals being

- 20 other than hydrogen and X represents  $\text{OR}^5$  or  $\text{N}(\text{R}^6)(\text{R}^7)$ , where  $\text{R}^5$  represents hydrogen or optionally substituted  $\text{C}_1$ - $\text{C}_{10}$ -alkyl, optionally substituted phenyl or benzyl and  $\text{R}^6$  and  $\text{R}^7$  are identical or different and in

each case represent optionally substituted  $C_1$ - $C_{10}$ -alkyl and  $R^8$  represents hydrogen, chlorine or bromine, and

- (b) cyclizing the hydrogenated cinnamic acid or cinnamic acid derivative formed in step (a), thereby forming the indanone derivative of the formula (VIIa)



wherein  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$  and  $R^8$  have the meaning indicated in formula (III) above and

10

- (c) converting the indanone derivative of the formula (VIIa), in case of  $R^8$  representing hydrogen after halogenation, by a palladium-catalysed carbonylation reaction with carbon monoxide and a suitable nucleophile, and thereby forming the indanone derivative of the formula (VIIb).

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